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Examining the Determinants of Islamic Banks' Non-Performing Financing in Small-Medium Enterprises (SMEs) Sectors

Abstract

The performance of Islamic bank in financing activities is determined by many factors, including macroeconomic variables and internal factors such as financial performance of the bank. The study attempts to investigate the determinant of non-performing financing (NPF) of Islamic bank in Indonesia particularly in Small-Medium Enterprises (SMEs) sector. Adopting the panel data analysis, the data comprise 33 provinces in Indonesia starting from 2016m1 to 2021m07 which equal to 2211 observation period. The study reveals that the size of bank's asset and financing to deposit ratio (FDR) of Islamic bank has significant relationship to NPF value in SMEs sector and the impact remains unchanged in the period of before and during the COVID-19 pandemic. From the regional viewpoint, the size of bank's asset also has significant influence on NPF in the provinces located in Java but not in the outside Java. As a policy implication, the study suggest that size of bank's asset must be enhanced with put together a prudent risk management in financing activities in SMEs sector. Surely, the policy can be implemented in top-down approach through government and financial authority then it also can be applied bottom-up approach through bank's business activities.

Key words: Islamic bank, SMEs, Panel Data Analysis, NPF

INTRODUCTION

As an intermediary institution, Islamic banks has a pivotal role to channeling the funds from the deficit unit to surplus unit. This role also can ascertain on how Islamic banks can support the deficit units to perform economic activity. However, during the current economic turmoil due to the COVID-19 pandemic effect either in the financial and real sectors, the performance of economic players including Islamic banks in the financial system is then questioned on how the performance of Islamic banks financing to the deficit units especially in response to the regional inflation.

Theoretically, Haberler (1960) stated that inflation is a reflection of an increase in price for goods and services. In terms of the relationship between inflation and business cycle, Haberler (1960) added that a moderate level of inflation possibly increases the level of economic growth as long as the price of goods and services in the market still above the cost of production. Moreover, Kiyotaki and Moore (1997) explain that the economic condition affects the credit activities performed by the borrowers and lenders. During unstable financial circumstances, borrowers' ability to return their loans is uncertain whereas, during a stable and growing economy the ability to return the loan will be higher.

In contrast, Bernanke, Gertler and Gilchrist, (1998) argue that the credit activities are the one that influences macroeconomic conditions, referring to the 1930s' great depression experience in which credit market exacerbated the macroeconomic condition at that time. Both arguments show that macroeconomic condition can influence the credit risk but at the same time, NPLs at certain level can also worsen the economic condition.

From the perspective of business performance, the internal financial performance determines how financial institution such as in the banking performance respond the economic circumstance. For instance, Boyd and Runkle (1993) stated that bank size has a pivotal role in banking performance. A term "too big to fail" explains that a big-size bank is less likely to be bankrupt compared to the smaller one. The big-size bank has a power to diversify the financing activities, better liquidity to manage the asset as well as possibly create contagious effect when it is bankrupt and then the bank also tends to be protected by the government. In the opposite argument, a big-size bank possibly takes a position as a risk-taker which means the bank has more risk exposure than smaller one (Boyd & Runkle, 1993). Therefore, the big-size bank has more risk, and it potentially creates an adverse effect on banking performance such as a high non-performing financing rate when the bank fails to manage the risk.

This study is aimed to investigate the determinant of the Indonesian Islamic banks' non-performing financing in SMEs' sector. The reasons to select Indonesia as the object of study is spurred by three reasons; (1) Indonesia is considered to have robust financial system that can be seen from the global financial crisis history in which the country could defend and recover well from the crisis either in global financial crisis 2008 and Asian financial crisis 1997/1998 (Khattak et al., 2021). (2) Indonesia has a dual banking system since the first established of the non interest-based bank in 1992 (Islamic bank was renown as bank performing non-interest banking activity at that time by the formal regulation under National Law No.7 year of 1992). Currently, Islamic banks comprehensively are regulated under National Law No. 21 year of 2008 and also have market share more than 5% in the Indonesian banking industry (Khattak et al., 2021). (3) Currently, Indonesia is one of the most developed in countries in Islamic finance development including in the Islamic banking sector (Ernst and Young, 2016) and Indonesia is also the most populus moslem countries that make the country has prospective market for the growth of the Islamic finance development (Trinugroho et al., 2018).

The contribution of the study consists of two aspects. Firstly, the study comprehend the previous literature conducted by Iriani & Yuliadi (2015), Ibrahim & Rahmati (2017) who stated that the banks' non-performing loan is influenced by macroeconomic variables including inflation rate. The afroementioned finding is also the same as Lin et al. (2016) who study in the Indonesian banking industry and conclude that Islamic banks' non-performing financing did not have significant relationship to inflation rate but not for conventional bank. On the other hands, Aviliani *et al*. (2015), Nursechafia and Abduh (2014), Erdinç and Gurov (2016) and Firmansyah and Gunardi (2018) found that inflation has negative and significant effect to Islamic banks' non-performing financing. In contrast, Klein (2013) and Abid et al. (2014) found it has positive and significant relationship to the bad loan of banks.

Moreover, Widarjono, Anto and Fakhrunnas (2020) stated that a larger Islamic bank has more benefit in diversifying the financing activities. Hence, the bank is considered to have a better risk management compared to a smaller bank particularly in Java Island. Other related financial performances such as financing to deposit ratio and asset size of the banks possess a pivotal role to determine the Islamic bank performance particularly in NPF value (Sutrisno, Panuntun and Adristi, 2020; Anto, Fakhrunnas and Tumewang, 2022). The impact of Islamic bank's asset to the banking performance is also highlighted by Ibrahim and Rizvi (2017) using cross countries analysis and the impact of financial performance to Islamic bank's financing for SMEs studied by Aysan *et al*. (2016) in the case of Turkey. Most of the previous empirical studies above mentioned generally measure the bad loan performance of the banks during stable economic condition but not in the turmoil situation.

Secondly, the study is expected to contribute to have a new perspective in assessing the determinant of Islamic banks' NPF. In terms of the previous literature that analyze Islamic banks' bad loan in the Covid-19 pandemic period, Elnahass, Trinh and Li (2021) found that Islamic bank suffered from covid-19 pandemic that can be seen from lower financial performance as well as facing higher asset risk. The finding is similar to Sutrisno, Panuntun and Adristi (2020) who also highlighted the negative impact of the COVID-19 pandemic to Islamic banks performance in Indonesia. Moreover, Fakhrunnas, Tumewang and Anto (2021) and Anto, Fakhrunnas and Tumewang (2022) attempted to explain the relationship of Islamic banks' non-performing financing in home financing to regional inflation before and during the COVID-19 pandemic with adopting a dynamic panel data. However, the prior studies did not explain how Islamic bank's performance in SMEs sector with covering the before and during outbreak as well as analyzing the regional approach in the case of Indonesia. Therefore, to the best of our knowledge, the study of the determinant of Islamic bank's NPF remains meagre and need to be examined properly.

The motivation of the study is also expected to provide an empirical information for Islamic banks' stakeholders on how Islamic banks react during before and during the Covid-19 period. Therefore, the stakeholders especially the financial authority is able to issue appropriate policy to respond the current situations.

In terms of the sequence of the study, the next sections discuss data and method then it is continued by the result and discussion. Finally, the conclusion is the end of the sections that depict the findings of the study as well as suggest the necessary financial policy for the betterment of Islamic finance industry.

DATA AND METHOD

To examine the determinant of Indonesian Islamic banks' non-performing financing in SMEs' sector, the study utilizes panel data retrieved from Indonesian financial service authority and Indonesian statistics. The data is in monthly bases from January 2016 to July 2021 in province level. With the total number of provinces is 33 provinces, the study consists of 2211-observation period. Moreover, to examine the impact of COVID-19 pandemic, then the data is separated into two period which are October 2018-February 2020 (Before the COVID-19 pandemic) and March 2020-July 2021(During the COVID-19 pandemic)

The general model of the study is explained as a follow;

$$NPF_{it} = \beta_0 + \beta_1 INF_{it} + \beta_2 FDR_{it} + \beta_3 ASST_{it} + \varepsilon_{it}$$

Where,

NPF_{it} : The percentage of non-performing financing compared to total financing in Islamic banks in the time *t* and province *i*

FDR_{it} : The percentage of total financing to total deposit of Islamic banks in the time *t* and province *i*

$ASST_{it}$: The total asset of Islamic banks in the time *t* and province *i*

ε_{it} : Error term

In detail, the variable of NPF is then separated into two which are Islamic bank's NPF in equity financing (NPFE) and in investment financing (NPFI) for SMEs.

In addition, panel data analysis using Fixed Effect Model (FEM) is adopted in this study to assess the determinant of Islamic bank's NPF in SMEs sector with concerning the outbreak and regional approach. Then, following brahim and Rizvi (2017) and Elnahass, Trinh and Li (2021), the study utilizes the robustness check that is applied to check the consistency of the result with using Generalized Method of Moment (GMM) as suggested by Holtz-Eakin et al., (1988) and Bond (1991).

RESULT AND DISCUSSION

Table 1. The Result of Data Description

Variable	All Period				Before Outbreak				During Outbreak			
	Mean	Max	Min	Std. Dev.	Mean	Max	Min	Std. Dev.	Mean	Max	Min	Std. Dev.
NPFE	7.3%	100%	0%	6.6%	6.8%	420%	0%	5.8%	0.075	420%	0%	6%
NPFI	6.2%	100%	0%	5.2%	6.1%	260%	0%	4.6%	0.067	280%	0%	5.5%
INF	0.29%	4.2%	-3.03%	0.66%	0.31%	3.22%	-2.74%	0.66%	0.26%	3.6%	-1.88%	0.62%
FDR	108%	277%	25%	44.7%	108%	238%	29%	44.6%	109%	241%	26%	45.6%
ASSET	IDR 7.9	IDR 13.0	IDR 5.1	IDR 1.6	IDR 7.9	IDR 13.0	IDR 5.1	IDR 1.5	IDR 14,220.4	IDR 434,579.6	IDR 175.3	IDR 43,732.8

Note: The amount of the asset is in IDR Billion

Table 1 explains the description of the data in the all period, before and during the COVID-19 pandemic. According to the table, it can be seen that both NPF in equity and investing have a higher percentage during the COVID-19 pandemic compared all period and before the outbreak. It reflects that during the pandemic the bank is facing higher risk exposure which result a higher percentage of NPF. Moreover, the percentage of inflation during the COVID-19 pandemic is considered to be low which possibly reflects a decrease of purchasing power by the society during the outbreak. In contrast, the financing activities compared to deposit ratio remains stable in the all periods and the size of Islamic bank has been growing time by time including during the COVID-19 pandemic period.

Table 2. The Result of Correlation Test

Variable	NPFE	NPFI	INF	FDR	ASST
NPFE	1.000	0.276	0.035	-0.004	-0.176
NPFI	0.276	1.000	0.051	0.039	-0.154
INF	0.035	0.051	1.000	-0.061	0.094
FDR	-0.004	0.039	-0.061	1.000	-0.200
ASST	-0.176	-0.154	0.094	-0.200	1.000

In terms of correlation analysis, the table 2 exhibits that the highest correlation value is 0.2 between FDR and ASSET that means both variables have strongest relationship compared to others. Moreover, there is no correlation value between two variables which has the same or more than 0.8. From the result, it can be interpreted that there is no correlation issue among the observed variables.

Table 3. The Result of Fixed Effect Regression

Variable	All Period		Before Outbreak		During Outbreak	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
INF	0.001	0.002	-0.003*	-0.005**	0.005	0.006
	0.595	1.205	-1.903	-2.137	0.912	1.594
FDR	0.001	0.004**	-0.009*	0.000	-0.005	0.002
	0.184	2.241	-1.751	0.156	-1.203	0.591
ASSET	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	-7.411	-9.700	-3.128	0.000	-5.225	-6.640
C	0.075***	0.059***	0.082***	0.063***	0.083***	0.066***
	15.054	29.300	13.960	0.003	16.711	21.229
R-squared	0.061	0.063	0.146	0.153	0.043	0.038
F-statistic	1.353**	1.387***	1.057	0.236	2.222**	1.963**

Note: The symbols of ***, ** and * reflect the significance level at 1%, 5% and 10% for each

Furthermore, the result of FEM is explained in the Table 3. According to the finding, during all period, inflation do not have significant influence on NPF in all models. The finding is different from Fakhrunnas, Tumewang and Anto (2021) and Anto, Fakhrunnas and Tumewang (2022) stated that inflation is the determinant of NPF's value in the Indonesian Islamic bank. Moreover, FDR has positive and significant impact to NPF in investment financing. It reflects that a higher percentage of NPF in investment financing tend to increase NPF. In line with Sutrisno, Panuntun and Adristi (2020), when the bank performed over financing activities compared to the amount of deposit fund with lack of risk management, the risk of financing tend to be higher and it directly impact to banking performance.

In addition, the size of Islamic bank has positive and significant relationship to NPF in all models of SMEs' financing. A positive relationship indicates that when the bank's asset size increases, the value of NPF in equity and investment financing for SMEs sectors increases as well. The finding is in contrast to Ibrahim and Rizvi (2017) who stated that Islamic bank tend to have a better performance if the bank has a higher size. Similar to Boyd and Runkle (1993) argument, with possessing a higher size , the bank possibly tends to be risk taker and only the bank having lack of

Table 4. The Result of Fixed Effect Regression (Regional Approach)

Variable	JAVA						OUTSIDE JAVA					
	All Period		Before Oubreak		During Outbreak		All Period		Before Oubreak		During Outbreak	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
INF	0.000	0.007	-0.001	0.000	0.016	-0.001	0.002	0.002	-0.001	-0.002	0.005	0.008**
	-0.031	1.340	-0.200	-0.004	0.705	-0.047	1.034	1.134	-0.265	-0.590	1.048	2.028
FDR	-0.024*	0.013	-0.032**	-0.019	-0.053**	0.070**	0.000	0.005*	-0.008	0.004	-0.003	0.001
	-1.689	0.867	-2.094	-1.522	-2.293	2.355	-0.040	1.897	-1.289	0.783	-0.580	0.096
ASSET	0.000***	0.000***	0.000***	0.000***	0.000***	0.000**	0.000	0.000	0.000	0.000	0.000	0.000
	-6.200	-5.696	-5.069	-4.884	-2.739	-2.613	-0.463	-0.701	-0.314	-0.247	0.382	-0.455
C	0.091***	0.054***	0.096***	0.077***	0.112***	0.016	0.077	0.058***	0.081***	0.059***	0.082**	0.065***
	6.530	3.895	6.077	5.870	6.160	0.552	18.484	18.701	10.413	9.727	10.719	9.756
R-squared	0.165	0.152	0.290	0.253	0.227	0.199	0.021	0.023	0.035	0.024	0.017	0.023
F-statistic	2.044***	1.854***	3.609***	2.994***	2.468***	2.089**	1.066	1.158	1.433	0.978	0.697	0.959

Note: The symbols of ***, ** and * reflect the significance level at 1%, 5% and 10% for each risk management that potentially underperformed. It means in the all period of Islamic bank is possibly not prudent when giving equity and investment financing to SMEs.

Before and during the outbreak, the asset of Islamic bank has the same influence as it occurs in all periods either in the model 1 or model 2 in which a higher size of Islamic bank tends to have a higher NPF in SMEs sector. When no other variables have significant relationship in both models during the outbreak except the asset of Islamic bank, inflation has negative and significant relationship to NPF in all models. It indicates that a lower inflation is possibly due to a less purchasing power possessed by the society to buy product and services provided by the SMEs. As a result, the condition create a higher possibility of SMEs to return the financing amount to the Islamic bank (Fakhrunnas, Tumewang and Anto, 2021). The finding is also in line to what was found by Aviliani *et al*. (2015), Nursechafia and Abduh (2014), Erdinç and Gurov (2016), and Firmansyah and Gunardi (2018) who conclude that inflation has negative and significant effect stated that inflation has negative relationship to Islamic banks' NPF.

Regarding to the negative impact of FDR to NPF in equity financing before the pandemic occurs, a higher percentage of FDR lessens the non-performing financing in SMEs sector. The finding is also the same as Sutrisno, Panuntun and Adristi (2020) who found FDR is the determinant of Islamic banking performance. Moreover, that negative relationship also portrays the condition before the outbreak in which Islamic bank performs a better risk management in channeling the funds through SMEs equity financing compared to other periods.

Considering the regional performance of Islamic bank's financing for SMEs, the study divides the analysis into two separate samples; (1) Islamic bank located in Java Island that consist of six provinces and (2) Islamic bank located in Outside Java Island that consist of twenty-seven provinces. In general, Islamic bank's size has positive and significant relationship in Java Island. It confirms that the size becomes the determinant of NPF in SMEs. However, Islamic bank must take a concern regarding to its positive effect because a higher asset size of Islamic bank tends to worsen the performance of NPF. The condition is possibly due to imprudent financing activities of Islamic bank and as mentioned by Boyd and Runkle (1993), the excessive financing might be the reason why the bank possessing a higher asset size has excessive risk exposure. In contrast, Islamic bank's NPF in Outside Java Island has no significant relationship to NPF. As mentioned by Widarjono, Anto and Fakhrunnas (2020), this circumstance is possibly caused by the small amount of asset size of Islamic bank in outside Java Island which only contribute roughly 40% of economic activities to Indonesian economy.

Moreover, FDR becomes the determinant of Islamic bank's NPF in Java Island as it is in Outside Java Island in the model 2 during the observation of all periods. The finding is supported by Sutrisno, Panuntun and Adristi (2020) who found the same result. However, the influence of FDR in Java Island negatively affects NPF when in the outside Java Island has opposite influence. It portrays that in terms of total financing to deposit ratio, Islamic bank in Java Island performs better to tackle imprudent issue compared to all provinces in the outside Java Island. It may occur because financing activities in Java Island has more diversification in terms of the use of the contract compared to outside Java Island (Widarjono, Anto and Fakhrunnas, 2020). In the outside Java Island, Islamic bank's NPF for investment financing in SMEs sector also still has an exposure to inflation risk nevertheless it does not occur in Java Island.

Table 5. The Result of GMM Test

Variable	Model 1	Model 2
NPF(-1)	0.038	0.046
	1.322	0.950
INF	0.001	0.002
	0.224	0.622
FDR	-0.008	-0.001
	-1.814	-0.211
ASSET	0.000***	0.000***
	-3.139	-3.626
J-Statistic	30.071	28.015
AR (2)	1.122	1.183

Note: The symbols of ***, ** and * reflect the significance level at 1%, 5% and 10% for each

Finally, a robustness check is conducted to examine whether the same result is presence when the different analytical tools is implemented. Adopting GMM approach as proposed by Hotz-Eiken, Newey and Rosen (1998) and Arellano and Bond (1991). According to the GMM result, the size of Islamic bank has positive and significant influence the Islamic bank's NPF in both models. Generally, the result emphasizes to the FEM's finding which stated that the size of Islamic bank becomes the determinant of Islamic bank's NPF in SMEs sector.

CONCLUSION

The aim of the paper is to investigate the determinant of Islamic bank's non-performing financing in SMEs sectors particularly in equity and investment financing. The finding of the study reveals that the size of Islamic bank's asset is consistent to influence NPF in SMEs sector in any, including all period, before, and during the pandemic. Moreover, inflation influences negatively to NPF in all models before the pandemic only and it is the same for financing to deposit ratio.

In the regional viewpoint, Islamic bank's size has positive and significant relationship to NPF in Java Island in the all period, before and during the pandemic while financing to deposit ratio also impact to NPF even though it has a diverse direction in certain period. Only inflation affects Islamic bank's NPF in SMEs sector for investment financing during the COVID-19 pandemic in outside Java Island while other variables have no significant effect. The robustness check through GMM approach generally explains that the size of Islamic bank's asset has positive relationship to non-performing financing value in SMEs sector.

As an implication of the results, a higher size of Islamic bank has a higher rate of NPF in SMEs sector. The findings indicate that Islamic bank possessing a bigger asset tends to be a risk taker compared to a smaller Islamic bank. Moreover, a bigger size of Islamic banks may not have a proper risk management which let the bank having more NPF's value. According to the findings, Islamic bank needs to have a robust risk management system in financing SMEs sectors. Since the SMEs financing is riskier, financing criteria needs to be tightened to ensure the SMEs can return the financing funds as well as sharing the profit. For the policy maker, the financial authority needs to much more supervised Islamic banking performance particularly in SMEs financing. Some regulations are required to strengthen the risk management process of Islamic banks.

Lastly, the paper still has the limitation particularly in the use of limited variables. Therefore, the future study needs to increase the number of observed variable and building the more robust empirical research's model to examine the determinant of Islamic bank's NPF in SMEs sector. These improvements are believed to be needed to bring the study to the next level.

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